Reviewer’s report

Title: Functional outcomes of general medical patients with severe sepsis

Version: 2 Date: 16 July 2013

Reviewer: Mark Mikkelsen

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In this retrospective cohort study, Odden et al. examine the short-term functional outcomes of severe sepsis patients admitted to the general medical ward.

The primary strengths of the study are the significance of the question, plausible and testable hypotheses, careful case selection, detailed data regarding baseline functional status and pre-admission living situation, the use of a structured data abstraction tool, and the generalizability of the results given the careful comparison to published national data for discharge location.

The authors found that half of the ward admissions were unable to be discharged. More specifically, one out of three patients who were functionally independent at baseline were unable to return home. This change in functional ability (i.e., ability to return home) was not limited to those who required ICU care during the hospitalization.

Major Compulsory Revisions:

1. Methodology: The authors identified the study population through a two-step approach. First, they screened all hospital discharges over the study period using the validated Angus ICD-9 code approach. Then, three hospitalists reviewed the chart to verify severe sepsis.
   a. The authors reference a publication in Medical Care as precedent for their approach to sample 103 hospitalizations with severe sepsis and 20 cases without (N=123). Please clarify the rationale to limit the cohort to 123 subjects.
   b. Of the 111 randomly sampled patients included, 93 were Angus-derived cases, yet only 61 of these were verified as having severe sepsis during the hospitalization (i.e., 66% positive predictive value). Can the authors provide some details for why so many patients with ICD-9 severe sepsis codes were ultimately excluded from the present study after chart review (i.e., fulfilled criteria for severe sepsis but the final diagnosis was not consistent?).
   c. Please report how disagreement was handled between the 3 reviewers regarding whether the patient met criteria for severe sepsis (the kappa for discharge location was 0.86, but I do not recall seeing an agreement assessment for whether cases should be included)?

2. Results: Please consider including a figure to depict the trajectory of care of these patients, which is currently presented exclusively in text on page 9 and Tables 2 and 3 (please see Unroe et al 2010 Annals article as an example). This
suggestion may help the reader to more clearly follow the path of these patients and the text could be edited then to highlight the specific points of interest.

3. Please clarify whether “expired” means in-hospital mortality in your tables and figures. In addition, the abstraction tool categorized discharge location specifically, yet Tables 2 and 3 collapse this important information into “other.” The authors highlight “hospice” and “facility” as the other designations in their table. Hospice is a significantly different outcome than SNF, acute rehab, etc, and is often the reason to measure 28-day mortality. If possible, please edit your results to provide the more granular data.

Minor Essential Revisions:

1. Introduction: In your 1st paragraph, last sentence, consider highlighting the long-term cognitive impairment experienced by severe sepsis survivors that your group has published given its relationship to physical disability.

2. Methodology: Please clarify why surgical admissions were excluded, as such cases account for approximately 10-20% of severe sepsis admissions. Please acknowledge in your discussion that your findings may not generalize to patients with severe sepsis admitted to the surgical ward and that further investigation into this line of inquiry is required.

3. Methodology: Please provide information about the use of physical therapy during the hospitalization, if available, within this patient population in light of your references regarding early ambulation.

3. Results: Please consider highlighting that severe sepsis ward admissions were more likely to be discharged home AND more likely to die than HCUP-NIS and CHF comparison groups.

4. Discussion: As acknowledged in the limitations, the ultimate sample size is small. Please remove the qualifying phrase “however our confidence intervals indicate that reasonable conclusions can still be drawn” as the confidence intervals are, in several instances, rather wide.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.